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AUTHOR Peterman, Carol L.
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ABSTRACT

Based on the hypothesis that teachers' naturally occurring presentations of storyreading have an effect on children's literacy learning, a study examined whether teachers can be trained to provide a structure for listening to stories and whether this type of presentation would result in significant gains in children's story understanding. Five kindergarten teachers from urban and suburban school districts in Eastern Central Illinois participated in the study. Experimental and control group selection for morning or afternoon time slots were randomly assigned. During the first week the teachers were observed daily as they read stories to each of their classes and on the fifth day were videotaped as they read "At Mary Bloom's." For the remaining three weeks, the teachers continued to read stories daily to both groups using the checklists for preparation and record keeping which they developed in individual inservice sessions with the investigator. For the duration of the study the teachers were videotaped at the end of each week in order to document their progress. Twelve preselected children were individually interviewed on recall, ability to answer probe questions, and word reading ability. Evidence gathered revealed that children's story understanding can be enhanced by storyreading procedures which draw on the children's own experiences and highlight similar experiences among the story characters. Focusing on the story grammar elements is also a successful technique. It appeared that children's story understanding can best be measured by the recall task, which includes propositions provided in children's answers to probe questions as well. (Eight tables of data are included and 34 references are attached.) (MG)

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Improving Story Understanding

SUCCESSFUL STORYREADING PROCEDURES: WORKING WITH KINDERGARTEN TEACHERS TO IMPROVE CHILDREN'S STORY UNDERSTANDING

Carol L. Peterman
Portland State University

At home, parents from various cultural backgrounds intuitively and implicitly provide the kind of supportive, non-threatening environment children need in order to understand the functions of literacy and to develop their schema for learning about written language (Heath, 1983, Schiefflin & Cochran-Smith, 1984; Taylor, 1983). In fact, by the time formal education begins most children are exposed to a variety of home literacy events (Teale, 1986). Parents or other family members often encourage, model, and sometimes even provide direct instruction in certain aspects of language and literacy concepts. By modeling the events and consequences of literacy in their everyday lives, parents inadvertantly influence their children's success in school settings (Wells, 1985).

In many middle-class homes across America, parents ease children into literacy by sharing the stories found in children's books. This usually occurs in the context of the bedtime storyreading event and is one of the most powerful ways children can learn about language (Teale, 1987). Parents seem to naturally know how to identify their child's level of understanding and simplify the reading process if necessary, so that learning takes place. Taylor and Strickland (1986) express it this way:

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Parents ... read books with children for the sheer pleasure it brings and the relationship it binds among their loved ones ... (T)hey do not deliberately set out to give language lessons. Nonetheless, all kinds of lessons about language do occur (p. x).

Thus, by the time many children enter school, they have been exposed to the form and function of print in storybooks (Mason, 1985a) and have developed an adequate concept of story (Applebee, 1978). Logically, this knowledge should help prepare them for understanding the concepts needed for formal instruction in reading and to help them "cope with the more disembedded uses of spoken language that the school curriculum demands" (Wells, 1985, p. 253). Furthermore, because of their experience with stories read to them at home, many children have expectations about storyreading in school. When teachers fail to capitalize on these expectations, they miss an opportunity to show children that learning to read is an extension of the literacy events occurring in their home environment.

Storyreading in Instructional Settings

Although the benefits of being read to at home have been well documented (Chomsky, 1972; Morrow, 1989; Teale & Sulzby, 1986; and others) few studies have been carried out in classroom settings, even though it is apparent that many kindergarten teachers value this event and incorporate it into their regular classroom routines (Mason, Peterman, Powell, & Kerr, 1988). Some of these classroom studies have revealed a negative correlation between time spent in

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storyreading and reading achievement (Meyer, Linn, & Hastings, 1985; Rosenshine & Stevens, 1984). It might be that, unlike parents, teachers fail to provide a structure for listening to and understanding stories (Morrow, 1984).

Exploratory studies on the nature of storyreading in kindergarten classrooms have suggested that teachers' existing storyreading presentations affect children's recall of the story when a story structure is provided (Dunning & Mason, 1984). In a follow-up study, Peterman, Mason, & Dunning (1985) found that children's attempts to read text from the story were also influenced, especially if the print was highlighted during the presentation. If teachers' naturally occurring presentations have an effect on children's literacy learning then is it the case that teachers can be trained to provide a structure for listening to stories? Furthermore, will this type of presentation result in significant gains in children's story understanding? These questions were addressed in the present study.

METHOD

Overview of the Study

The Teachers. Five kindergarten teachers from urban and suburban school districts in Eastern Central Illinois were selected to participate in the study. Each had expressed interest in learning more about the benefits of reading stories to their children as well as how to be more effective in the presentation of these stories. All five teachers taught two groups of children,

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one in the morning and one in the afternoon. Typically, they presented reading/readiness lessons using basal manuals and planned duplicated curricula for both their morning and afternoon sessions.

For purposes of data analyses, individual differences among teachers and the effect of instruction were accounted for by having the teachers act as their own control, presenting planned storyreading procedures designed during teacher training sessions to one group while keeping "business as usual" with the other. Experimental and control group selection for morning or afternoon time slots were randomly assigned.

The Children. The teachers were asked to select twelve students from each of their two classes which would best represent the essence of the class as a whole. Gender, ethnicity, age, and physical and emotional maturity remained proportional. However, the essential criterion was a close academic match between children from each teacher's morning and afternoon section. Academic ability was determined by each teacher's judgement as to how well the children would do on standard readiness tasks.

Control Group Procedures. Prior to the beginning of the intervention period, the teachers were asked to read storybooks of their own choosing to each of their classes in order for the investigator to observe existing storyreading techniques. Following five daily storyreading sessions in each classroom, the teachers were asked to present the storybook At Mary Bloom's (Ailiki, 1976) to their morning and afternoon classes in their usual

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manner. These presentations were videotaped, analyzed qualitatively, and discussed with the teachers in order to determine their typical storyreading procedures. A checklist was created for each teacher to refer to when planning and presenting stories to their control group.

A range of storyreading procedures was noted among the five teachers. The amount of discussion and instruction varied from "straight-through" storyreading, to a focus on vocabulary, to a close approximation of the techniques suggested for use with the experimental group (see below). These baseline differences made it necessary to quantify and account for each teacher's existing storyreading ability in order to measure change in presentation procedures across control and experimental groups.

Experimental Group Procedures. Individual inservice was provided for each teacher by the investigator. Handouts detailing home literacy factors that contribute to literacy; the goals for storyreading; and potential techniques for prereading, guided reading, and postreading techniques were presented and discussed. It was suggested that the teachers encourage active participation of the children with the adult and the text (Harkness & Miller, 1982); discuss experiences the children have had that are similar to ones encountered in the story (DeLoache & DeMendoza, 1986); ask children to make predictions about the story based on their own experiences (Pearson, Hansen, & Gordon, 1979); focus on the story grammar components (Beck, McKeown, McCaslin, & Burkes, 1979); and

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review the story, following up on the children's predictions (Pearson et al., 1979).

With the investigator, each teacher planned and later implemented these suggestions using books selected because of their well developed story structures, their clear themes, and their depiction of events and experiences with which kindergarten children are familiar. (For other guidelines for storybook selection, see Morrow, 1984.) Checklists for these procedures were also designed for teachers to use when preparing and recording their presentations. For the duration of the study, the teachers were videotaped at the end of each of the four weeks in order to document their progress.

Data Collection.

During the first week of the study the teachers were observed daily as they read stories to each of their classes. On the fifth day the teachers were videotaped as they read At Mary Bloom's (Aliko, 1976). Following the storyreading, the twelve preselected children were individually interviewed on their free and probed recall of the story and asked to read or "pretend read" selected pages photocopied from the storybook. These scores were used as covariates in subsequent multiple regression analyses. The teachers' baseline storyreading procedures were also used as a way of measuring the difference between existing storyreading ability and procedures developed as a product of the inservice training.

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Other status measures gathered during this week included the Metropolitan Achievement Test (Prescott, Balow, Hogan, & Farr, 1977), home literacy information gathered from parent questionnaires (partially reported in Mason & Dunning, 1986; and Mason, 1988) and four subtests of verbal achievement; specifically two researcher-designed tests (Classification and Analogies) created by Mason and her colleagues, and two standardized measures (Vocabulary and Statement Repetition) from the WPPSI (Wechsler, 1968). Information on children's age, gender, rank in class and ethnic membership were also gathered.

For the remaining three weeks of the study, the teachers continued to read stories daily to both their experimental and control groups using the checklists for preparation and record keeping. On Day Five of each week, the teachers were videotaped on preselected stories and the twelve children were individually interviewed on their recall, their ability to answer probe questions, and their word reading ability. For the story read on the final day of the study, the teachers were asked to read the story straight through, without any questions or discussions in order to test for transfer effects of the techniques used with both control and experimental groups. After the fourth week the Metropolitan (Prescott et al., (1977) was readministered.

Scoring.

Recall Score. This score is composed of the total number of propositions given by the child in the free recall, as well as the

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total number of different propositions included in his answers to the probe questions. Used together, these propositions represent the child's self-initiated recall and include a "probed" recall as well. Scoring procedures were based on those used in a pilot study (Peterman et al., 1987) and further developed by Dunning (1989).

Interrater reliability for the earlier project was 75%.

Essentially, the "idea units" or "propositions" concept used in this scoring system is one adapted from Omanson and Formosa (1982) and includes subordinated clauses (noting time, dealing with causality, and/or begin with "until" or "instead"), subjects which are elipsed in distinct idea units, noun clauses and adjectival clauses. When judging the correctness of an idea unit, the overall meaning is considered as mostly either right or wrong. Incorrect grammar, incorrect pronoun usage or incorrect verb tenses are discounted. Text-based inferences and paraphrases of text material are acceptable.

Probe Questions. Children's answers to questions probing the main character's problem, attempts to resolve the problem (or the main character's goal), and the resolution were assigned weighted scores by evaluating the appropriateness of text-based and inferential answers provided in the pilot study (Peterman et al., 1987). Scores for the answers to the problem question, goal question, and resolution questions were standardized and summed for a total score. Unlike the recall score, which judges children's recall of any text-based information, a high score in response to

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the probe questions indicates an understanding of the critical components of the story structure.

Word Reading Score. This score consists of the total number of words the child sounds out, recognizes on sight, recalls from picture clues, or simply remembers verbatim from the reading. Since most of the children were not able to decode the print, the picture often operates as a prompt to retell the story. This measure appeared to function as an assessment of children's wordreading ability as limited or enhanced by the picture. Interrater reliability on this measure was 92% in an earlier study (Mason et al., 1988).

Teacher Implementation Score. Two scores were assigned for the pretest story and the stories read and videotaped at the end of Weeks Two, Three, and Four. The first score represents the total number of teacher utterances during the storyreading event which include elements from the teacher training suggestions for presenting stories to the experimental group. For example, any comment or question dealing with experiences of the children in the classroom which are related to the experiences of the main character in the story would be tallied. Likewise, any comment or question dealing with any aspect of the story's structure would be added to the total score.

The second score is a proportion score representing the number of teacher utterances related to the teacher training sessions divided by the total number of teacher utterances presented during

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the storyreading event. Management comments were excluded from the denominator. Once each teacher's storyreading episodes were scored, these scores were then assigned to each child in the representative class. Interrater reliability was 90% and 91% respectively. Existing storyreading ability, or fidelity of treatment between control and experimental groups was accounted for by subtracting the pretest storyreading score from the posttest storyreading score.

Data Analyses

In order to determine the independent variables to be used in building the hierarchical regression model, intercorrelations among the independent and dependent variables were examined (see Table 1). In addition, the SAS RSQUARE procedure was employed to determine the cumulative contribution of all the variables of interest for each model. The final model used for each dependent measure consisted of the home literacy variable, the standardized and summed composite measures of verbal achievement, the relevant pretest measure of ability, and the teacher implementation change variable (the teacher implementation score minus the pretest implementation score).

Dependent variables of interest included the children's recall score, their scores on probe questions, their scores on the word reading task, and the Metropolitan Achievement Test. With the exception of the Metropolitan Test, these scores were collected at the end of Week Three and Week Four. Since the teachers were asked

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to read straight through the story at the end of Week Four, it was the intent to test for transfer effects at this point in the data collection.

RESULTS

Children's Recall

Multiple regression analysis reveals that the teachers' storyreading procedures resulting from the intervention training had a significant effect on children's recall at the end of Week Three ($F=7.48$, $p < .01$). (Dependent Measure A, Tables 2 and 3.) This effect is significant above and beyond the contributions of children's home literacy environment, their verbal achievement, and their pre-existing ability to recall story information. On this variable, no aptitude by treatment interactions were found.

At the end of Week Four, a nearly significant effect was found ($F=3.25$; $p < .08$). (Dependent Measure B, Tables 2 and 3). This decrease in significance can perhaps be explained by the fact that the teachers were asked to provide no intervention for either group in order to test for transfer effects. Some teachers were more successful in following the directive than others, resulting in a flawed measure of the test for transfer. For those who did receive "straight through" storyreading, it seems that the intervention period was not long enough for students to assume the responsibility for asking themselves the same types of questions as provided by their teacher in previous stories.

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It seems that children's recall, then, can be influenced by the types of questions and discussions that teachers raise before, during and after the storyreading. Previous studies seem to indicate, however, that children's ability to answer probe questions appears to be less influenced by intervention (Dunning & Mason, 1984; Mason et al., 1988; Peterman et al., 1987; and Peterman et al., 1985). Findings in the present study parallel those of existing studies.

Answers to Probe Questions

An encouraging trend is apparent in the children's ability to answer probe questions during the last two weeks of the intervention period. At the end of Week Three, the intervention accounts for less than .01 of the variance for the overall model ($F=.016$; $p < .69$). (Dependent Measure C, Tables 4 and 5). However, at the end of Week Four, the intervention accounts for .02 of the variance with a probability of .19 ($F=1.77$). (Dependent Measure D, Tables 4 and 5). Although these are small increases in variance accounted for, they seem to indicate that children's ability to answer probe questions did increase by the end of Week Four. This is especially noteworthy when considering that some of the teachers followed the directive to read straight through the story and that some did, in fact, limit the intervention in an attempt to follow the directive. Had the teachers provided the intervention as usual or had the intervention period been longer, it is likely that more significant findings would result.

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Word Reading Ability

The effect of the intervention on children's word reading ability and traditional readiness was tested by two different measures: the wordreading measure linked to the listening ability of the students and the Metropolitan Achievement Test (Prescott et al., 1977).

The Wordreading measure (Dependent Measures E and F, Tables 6 and 7) looked at students ability to predict (or read) the print represented on isolated pages photocopied from the storybook. Those children who were able to read some sight words were limited to talking about those selected few words. Those children who did well on the retelling measure may have either used the picture to retell the entire story or to simply talk about the picture in isolation or as it related to the story. This measure might very well reveal something about children's developing word reading ability after several interactions with the same book but in the present situation this ability does not appear to be influenced by this single-exposure treatment.

It is not surprising to find that although children's performance on the Metropolitan Achievement Test improved from the pretest to the posttest that it was not significantly enhanced by the teachers' intervention techniques (Dependent Measure G, Table 8). This type of test measures students' visual discrimination, auditory discrimination and their letter recognition ability. Only a small portion of the test measures students' listening

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comprehension, which is largely correlated with the measure of students' verbal achievement ($r=.51$). It is not likely that storyreading in a large group situation, focusing on listening comprehension and story understanding would result in the improvement of any of these kinds of measures. An exception may be that the listening comprehension subtest alone might be influenced by the intervention, however, a post hoc analysis revealed parallel results. These results can perhaps be explained by the negatively skewed pretest distribution.

Tests for transfer.

Initially, the tests given at the end of Week Four were designed to test for the tranferrability of the storyreading techniques from the teacher to the children by having the teacher read straight through the story without any intervention. The intent was to see if the children would ask themselves the same kinds of questions and focus on the same important aspects that the teacher had been emphasizing during the previous weeks of the study. Unfortunately most teachers were unable to read straight through, perhaps due to either a misunderstanding of the intent of this storyreading session or because the interactions with the children made this impossible. For example, while reading the story one teacher was interrupted:

T: (Reading) She sang her private little "tra-la-la" song as she roller-skated up and down her front sidewalk. The "tras" were just fine but the "la-la-las" kept bumping into that wobbly tooth. Elizabeth Ann put her

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skates back in the hall closet. She sighed. She couldn't forget that tooth no matter how hard she tried!

C: Um, I have one. I have a tooth that's loose and I can forget about it.

T: You can forget about it? Well, you need to talk to Elizabeth Ann, then. Maybe you could tell her how you forget about it?

Notice that the teacher not only acknowledges the interruption, but attempts to bring the child and the class back to the story while linking the child's response with the main character. This strategy was discussed between the investigator and the teachers throughout the course of the study and thus, was scored as part of the intervention procedure.

These tests, then, do not measure transfer effects but the effects of the teachers' somewhat limited intervention.

DISCUSSION

Instructional Implications

Evidence gathered in the present study reveals that children's story understanding can be enhanced by storyreading procedures which draw on the children's own experiences and highlight similar experiences among the story characters. Focusing on the story grammar elements is also a successful technique. These techniques are presented to teachers in reading and language arts textbooks but are also documented as those used by parents during home storyreading events. Teachers can be trained to modify those procedures which are appropriate for the large group setting of the kindergarten classroom.

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Additionally, it appears that children's story understanding can best be measured by the recall task, which includes propositions provided in children's answers to probe questions as well. This task more closely matches the benefits to be derived from storyreading as opposed to the more decontextualized tasks require by the Metropolitan Readiness Test. This finding could perhaps explain why previous studies (Meyer et al., 1985; Rosenshine & Stevens, 1984) resulted in negative correlations between time spent in storyreading and reading achievement. Reading ability can no longer be confined to children's ability to answer comprehension questions or score well on auditory and visual discrimination tasks but includes their ability to listen, remember and retell the important parts of stories, especially as they relate to the children's own experiences. Perhaps teachers can use variations on this task as an informal assessment of children's knowledge about stories.

Contributions to the Field

The present study represents the culmination of a series of studies directed at learning more about the contributions of storyreading in instructional settings. We began by looking at the existing storyreading procedures of teachers currently in the field (Dunning & Mason, 1984) and the effect on children's comprehension and word reading ability (Dunning & Mason, 1984 and Peterman et al., 1985) Next, a pilot study was carried out for the purpose of identifying the storyreading procedures to be recommended to

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teachers and how to best present and monitor the implementation of these procedures (Peterman et al., 1987). Throughout each of these studies, we have refined the measures used to evaluate children's story understanding. Finally, the teacher-training intervention study presented here was undertaken (Peterman, 1988).

Further research is needed to refine the work begun in this study. Suggestions include a longer intervention period, the use of repeated readings of storybooks used, integrating other home literacy events from other subgroups, and integrating writing into the review and discussion of the stories.

Concluding Remarks

For most children, storyreading begins at home, in the context of the bedtime story, in which parents and children share an enjoyable experience. Parents ask questions which they know their children will be able to answer, they draw on joint experiences which can be discussed during this event, and they help children to gradually take on more of the responsibility for reading the story (Bruner, 1976; DeLoache & DeMendoza, 1986; Harkness & Miller, 1982; and Pellegrini, Brody, & Sigel, 1985). Because of their experience with stories read to them at home, children look forward to learning more about stories in school.

Many teachers may be aware of the goals for as well as the benefits to be derived from reading stories to children. However, many do not intuitively know how to present stories in a manner similar to parent, perhaps because of the perceived constraints in

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reading to a large group of children. The present study shows, however, that given a rationale for presenting stories in specific ways, and in addition, taking part in the design of these storyreading presentations, teachers can be trained to plan and implement effective presentations which have a positive, significant effect on children's story understanding.

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Table 1

Correlation Matrix: Dependent Measures and Independent Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1 • Home Literacy: Literacy Index																			
2 • Home Literacy: Child Involvement Index	.26																		
3 • Home Literacy: Composite Index	.85	.80																	
4 • Verbal Achievement (3 Subtests)	.33	.10	.22																
5 • Verbal Achievement (4 Subtests)	.31	.14	.26	.96															
6 • Pretest Metropolitan	.18	.11	.15	.61	.65														
7 • Pretest Recall	-.02	.24	.22	.27	.31	.15													
8 • Pretest Probe Questions	.06	.12	.09	.60	.62	.37	.46												
9 • Pretest Wordreading	-.25	-.17	-.26	.18	.17	.03	.11	.19											
10 • Teacher Implementation Score for Week Three	-.09	-.24	-.28	-.06	-.08	-.01	-.10	-.05	.01										
11 • Teacher Implementation Score for Week Four	-.23	-.18	-.29	-.03	-.05	-.01	.07	.08	.12	.79									
12 • Overall Teacher Implementation Score	-.16	-.22	-.30	-.12	-.13	-.07	-.02	-.05	.00	.95	.87								
13 • Posttest Metropolitan	.14	-.01	.05	.64	.69	.64	.12	.36	-.10	-.01	-.07	.11							
14 • Week Three Recall	-.02	.20	.13	.23	.24	.15	.35	.24	.00	.16	.29	.20	.15						
15 • Week Four Recall	.19	.23	.26	.30	.32	.19	.19	.29	-.03	.14	.18	.12	.16	.43					
16 • Week Three Probe Questions	.18	.19	.21	.42	.44	.31	.27	.34	.02	-.08	.04	-.03	.25	.35	.08				
17 • Week Four Probe Questions	.13	.13	.15	.61	.65	.39	.27	.49	.08	.17	.17	.12	.32	.38	.41	.41			
18 • Week Three Wordreading	.36	.18	.32	.41	.60	.29	.05	.15	.17	.13	-.03	.03	.16	.19	.31	.14	.31		
19 • Week Four Wordreading	.03	-.01	.00	.27	.25	.18	.03	.28	.19	.03	-.08	-.01	.03	-.01	.07	.09	.21	.33	

Table 2

Means of Dependent Measures and Pretest Measures by Degree of Implementation Change

Dependent Measures A and B							
		A				B	
		Recall for Week Three				Recall for Week Four	
		Pretest	Posttest			Pretest	Posttest
Degree ^a	Teacher			Degree	Teacher		
Teacher	Score			Teacher	Score		
1	-14.00	5.08	6.00	1	-11.50	5.08	5.83
T5Con		(2.18) ^b	(4.02)	T5Con		(2.18)	(3.07)
2	-12.00	6.18	6.18	2	-7.00	5.25	5.91
T1Con		(3.12)	(3.16)	T2Con		(2.63)	(2.77)
3	-4.00	5.25	4.64	3	-3.50	6.18	8.60
T2Con		(2.63)	(2.29)	T1Con		(3.12)	(3.14)
4	4.00	4.33	6.50	4	0.00	4.33	8.67
T3Con		(2.74)	(3.51)	T3Con		(2.74)	(3.91)
5	9.00	5.09	6.40	5	3.00	3.67	7.50
T2Ex		(2.98)	(2.01)	T3Ex		(3.61)	(2.33)
6	29.00	6.27	8.80	6	11.00	5.09	6.73
T4Ex		(3.17)	(3.68)	T2Ex		(5.60)	(3.07)
7	31.00	5.60	6.20	7	13.50	5.60	5.44
T4Con		(3.50)	(4.52)	T4Con		(3.50)	(3.09)
8	40.00	5.92	7.92	8	18.50	4.15	8.00
T1Ex		(2.61)	(4.36)	T5Ex		(2.34)	(3.55)
9	43.00	3.67	4.67	9	24.50	5.92	9.83
T3Ex		(3.61)	(2.87)	T1Ex		(2.61)	(3.33)
10	67.00	4.15	7.45	10	27.50	6.27	7.22
T5Ex		(2.34)	(2.77)	T4Ex		(3.17)	(3.23)

^a1 = Lowest Degree of Implementation Change; 10 = Highest Degree of Implementation Change. ^bStandard deviation in parentheses.

Table 3

Regression Analysis: Dependent Measure A Recall for Week Three

Variable	R ²	R ² Change	F	Pr
Home Literacy	.0332	.0332	3.11	.0827
Verbal Achievement	.1302	.0970	9.08	.0037
Pretest	.2259	.0957	8.96	.0039
Teacher Implementation Change	.3058	.0799	7.48	.0080
Total Model	.3058		7.16	.0001

Regression Analysis: Dependent Measure B

Recall for Week Four				
Variable	R ²	R ² Change	F	Pr
Home Literacy	.0543	.0543	4.46	.0388
Verbal Achievement	.1337	.0794	6.52	.0132
Pretest	.1533	.0196	1.61	.2088
Teacher Implementation Change	.1929	.0396	3.25	.0763
Total Model	.1929		3.68	.0093

Table 4

Means of Dependent Measures and Pretest Measures Degree of
Implementation Change

Dependent Measures C and D							
Degree ^b Teacher	C ^a Probe Questions for Week Three Pretest Posttest			Degree Teacher	D ^a Probe Questions for Week Four Pretest Posttest		
	Teacher Score				Teacher Score		
1 T5Con	-14.00	-0.58 (1.16) ^c	-0.11 (2.15)	1 T5Con	-11.50	-0.58 (1.16)	-0.63 (1.75)
2 T1Con	-12.00	0.67 (1.29)	0.36 (2.33)	2 T2Con	-7.00	-0.19 (1.41)	-0.71 (2.21)
3 T2Con	-4.00	-0.19 (1.41)	-0.09 (1.52)	3 T1Con	-3.50	0.67 (1.29)	-0.08 (1.61)
4 T3Con	4.00	-0.11 (1.33)	-0.23 (1.93)	4 T3Con	0.00	-0.11 (1.33)	-0.02 (1.28)
5 T2Ex	9.00	0.69 (1.86)	0.46 (1.49)	5 T3Ex	3.00	0.03 (1.64)	0.09 (2.44)
6 T4Ex	29.00	-0.10 (1.76)	-0.36 (1.56)	6 T2Ex	11.00	0.69 (1.86)	0.70 (2.32)
7 T4Con	31.00	-0.53 (1.79)	-0.37 (1.24)	7 T4Con	13.50	-0.53 (1.79)	-1.19 (2.72)
8 T1Ex	40.00	0.67 (2.05)	1.19 (2.30)	8 T5Ex	18.50	-0.54 (1.52)	0.88 (1.69)
9 T3Ex	43.00	0.03 (1.64)	-0.44 (1.39)	9 T1Ex	24.50	0.67 (2.05)	1.03 (1.96)
10 T5Ex	67.00	-0.54 (1.52)	-0.66 (2.62)	10 T4Ex	27.50	-0.10 (1.76)	-0.38 (2.34)

^aThese scores are standardized scores. ^b1 = Lowest Degree of Implementation Change; 10=Highest Degree of Implementation Change.
^cStandard deviation in parentheses.

Table 5

Regression Analysis: Dependent Measure C

Probe Questions for Week Three				
Variable	R ²	R ² Change	F	Pr
Home Literacy	.0461	.0461	3.62	.0622
Verbal Achievement	.2903	.2442	19.19	.0001
Pretest	.2978	.0075	0.59	.4455
Teacher Implementation Change	.2999	.0021	0.16	.6895
Total Model	.2999		5.89	.0005

Regression Analysis: Dependent Measure D

Probe Questions for Week Four				
Variable	R ²	R ² Change	F	Pr
Home Literacy	.0176	.0176	1.69	.1980
Verbal Achievement	.2934	.2758	26.55	.0001
Pretest	.3375	.0441	4.25	.0436
Teacher Implementation Change	.3559	.0184	1.77	.1886
Total Model	.3559		6.56	.0001

Table 6

Means of Dependent Measures and Pretest Measures by Degree of Implementation Change

Dependent Measures E and F							
E				F			
Degree ^a Teacher	Wordreading for Week Three Pretest Posttest			Degree Teacher	Wordreading for Week Four Pretest Posttest		
	Teacher Score				Teacher Score		
1 T5Con	-14.00	2.54 (2.30)	6.42 (2.57) ^b	1 T5Con	-11.50	2.54 (2.30)	6.67 (4.31)
2 T1Con	-12.00	5.27 (3.66)	6.09 (3.62)	2 T2Con	-7.00	3.50 (2.24)	6.00 (3.97)
3 T2Con	-4.00	3.50 (2.24)	4.27 (3.00)	3 T1Con	-3.50	5.27 (3.66)	7.40 (3.57)
4 T3Con	4.00	4.33 (2.29)	7.75 (3.37)	4 T3Con	0.00	4.33 (2.29)	5.89 (1.54)
5 T2Ex	9.00	6.09 (2.88)	5.10 (3.51)	5 T3Ex	3.00	6.11 (3.98)	10.13 (3.18)
6 T4Ex	29.00	5.91 (2.88)	3.10 (1.60)	6 T2Ex	11.00	6.09 (2.88)	5.91 (3.88)
7 T4Con	31.00	4.60 (3.13)	3.30 (2.50)	7 T4Con	13.50	4.60 (3.13)	6.78 (3.27)
8 T1Ex	40.00	3.67 (2.23)	8.50 (4.30)	8 T5Ex	18.50	3.08 (2.43)	6.00 (3.97)
9 T3Ex	43.00	6.11 (3.98)	8.22 (3.27)	9 T1Ex	24.50	3.67 (2.23)	6.25 (3.77)
10 T5Ex	67.00	3.08 (2.43)	7.20 (2.39)	10 T5Ex	27.50	5.91 (2.88)	5.63 (3.11)

^a1 = Lowest Degree of Implementation Change; 10 = Highest Degree of Implementation Change. ^bStandard Deviation in parentheses.

Table 7

Regression Analysis: Dependent Measure E

Wordreading for Week Three				
Variable	R ²	R ² Change	F	Pr
Home Literacy	.0971	.0971	7.24	.0094
Verbal Achievement	.2240	.1269	9.46	.0033
Pretest	.2292	.0052	0.39	.5350
Teacher Implementation Change	.2620	.0328	2.45	.1236
Total Model	.2620		4.88	.0019

Regression Analysis: Dependent Measure F

Wordreading for Week Four				
Variable	R ²	R ² Change	F	Pr
Home Literacy	.1375	.1375	10.96	.0016
Verbal Achievement	.2423	.1048	8.35	.0054
Pretest	.2444	.0021	0.17	.6806
Teacher Implementation Change	.2471	.0027	0.21	.6475
Total Model	.2472		4.92	.0017

Table 8

Means of Dependent Measures and Pretest Measures by Degree of
Implementation Change

Degree ^a Teacher	Teacher Score	Dependent Measure G	
		Metropolitan Pretest Posttest	
1 T1Con	-12.00	67.77 (10.08) ^b	74.72 (6.86)
2 T5Con	-8.00	61.57 (16.80)	70.48 (11.89)
3 T2Con	-2.33	51.63 (16.24)	64.00 (13.48)
4 T3Con	4.00	68.13 (7.72)	72.67 (7.00)
5 T2Ex	4.67	62.80 (12.76)	71.67 (10.40)
6 T3Ex	29.00	64.33 (14.05)	73.40 (6.19)
7 T4Ex	41.00	59.30 (12.78)	66.76 (16.13)
8 T4Con	46.00	53.06 (13.80)	58.67 (15.14)
9 T1Ex	48.33	63.89 (13.73)	68.33 (11.56)
10 T5Ex	54.67	64.50 (13.84)	74.81 (8.21)

Regression Analysis: Dependent Measure G

Metropolitan Achievement Test				
Variable	R ²	R ² Change	F	Pr
Home Literacy	.0111	.0111	2.37	.1298
Verbal Achievement	.4122	.4011	85.42	.0001
Pretest	.7213	.3091	65.82	.0001
Teacher Implementation Change	.7248	.0035	0.75	.3919
Total Model	.7248		35.57	.0001